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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/889,489	07/17/2001	Shinji Koike	173-01	4101

7590 12/01/2003

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EXAMINER

ROSS, DANA

ART UNIT PAPER NUMBER

3722

DATE MAILED: 12/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/889,489

Applicant(s)

KOIKE, SHINJI

Examiner

Dana Ross

Art Unit

3722

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 09 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8-10 is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-7 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3,7.
- 4) ☒ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

<b>Examiner-Initiated Interview Summary</b>	<b>Application No.</b> 09/889,489	<b>Applicant(s)</b> KOIKE, SHINJI	
	<b>Examiner</b> Dana Ross	<b>Art Unit</b> 3722	

**All Participants:**
**Status of Application:** \_\_\_\_\_

 (1) Dana Ross.

(3) \_\_\_\_\_.

 (2) Ourz mazd Ojan (Reg. No. 38,065).

(4) \_\_\_\_\_.

**Date of Interview:** \_\_\_\_\_

**Time:** \_\_\_\_\_

**Type of Interview:**

- ☒ Telephonic  
☐ Video Conference  
☐ Personal (Copy given to: ☐ Applicant ☐ Applicant's representative)

**Exhibit Shown or Demonstrated:** ☐ Yes ☒ No  
 If Yes, provide a brief description: \_\_\_\_\_

**Part I.**
**Rejection(s) discussed:**
*Discussed 1<sup>st</sup> Action Rejection of claims 1 and 7 and allowable subject matter of claim 4.*
**Claims discussed:**
*Discussed claims 1, 7 and 4*
**Prior art documents discussed:**
**Part II.**
**SUBSTANCE OF INTERVIEW DESCRIBING THE GENERAL NATURE OF WHAT WAS DISCUSSED:**
*See Continuation Sheet*
**Part III.**

- ☐ It is not necessary for applicant to provide a separate record of the substance of the interview, since the interview directly resulted in the allowance of the application. The examiner will provide a written summary of the substance of the interview in the Notice of Allowability.  
☒ It is not necessary for applicant to provide a separate record of the substance of the interview, since the interview did not result in resolution of all issues. A brief summary by the examiner appears in Part II above.

 \_\_\_\_\_  
 (Examiner/SPE Signature)

 \_\_\_\_\_  
 (Applicant/Applicant's Representative Signature – if appropriate)

Continuation of Substance of Interview including description of the general nature of what was discussed: Discussed moving the substance of claim 4 into the independent claims to make the independent claims 1 and 7 allowable. Applicant agreed to the movement of the allowable subject matter in claim 4 to claims 1 and 7, however Applicant stipulated that acceptance of the examiner's amendment was dependent on an additional independent claim consisting of claims 1 and 3. Examiner explained that incorporation of claim 3 into claim 1 would not make the claim allowable since both claim 1 and 3 were not allowable to begin with. Allowability of claims is subject to SPE approval.

**DETAILED ACTION**

1. This is a second office action, final rejection on Application No. 09/889489 in response to the amendment filed on October 9, 2003.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,662,568 (Lindem) in view of U.S. Pat. No. 5,564,483 (Sacchi) and in further view of U.S. Pat. No. 4,652,190 (Corsi) or U.S. Pat. No. 6,264,590 (Ferrari). Lindem teaches a numerically controlled machine tool for machining a workpiece mounted on a workpiece support unit by moving a spindle having a tool mounted thereon in directions along an x-axis, a y-axis and a z-axis with respect to the workpiece (col. 1, lines 5-10) comprising; a spindle support structure 38 including a base 15 adapted to be located on a floor surface (fig. 2) and having guides extending in the direction along the x-axis on the upper and lower portions thereof, an x-axis slider guided along the guides on the upper and lower portions of said base to move from side to side in the direction along the x-axis (col. 5, lines 11-12), a y-axis slider guided to move upwardly and downwardly in the direction along the y-axis on said x-axis slider (col. 5, lines 12-14), a z-axis slider guided to move forwardly and backwardly in the direction along the z-axis on said y-axis slider (col. 5, lines 14-15), and a spindle 78 fixedly mounted on said z-axis slider or mounted to be rotatable in at least one of directions along an a-axis, a b-axis and a c-axis (fig. 1,

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col. 6, lines 18-29). Lindem also discloses a workpiece support structure 34 (col. 6, line 26, fig. 1) and a chip fan (col. 8, lines 6-10).

Lindem discloses the claimed invention except for a the spindle head mounted to be rotatable about at least a rotation axis extending in a direction along the z-axis and a rotational axis perpendicular to a direction along the z-axis and a workpiece support structure including a base having shaft support means, and a chip discharge means located between the spindle support structure and workpiece support structure.

The use of spindle heads mounted to be rotatable about at least a rotational axis extending in a direction along the z-axis and a rotational axis perpendicular to a direction along the z-axis is well known in the art as is evidenced by Corsi which teaches a machining head for automatic tool machines (fig 4, col. 2, lines 20-29) or Ferrari which teaches a machining head 6 with spindle head 7 for movement in the z-axis direction (col. 2, line 65-col. 3, line 8).

Sacchi teaches a unit workpiece support structure including a base 8 having shaft support means 42 located at the opposing ends thereof along the x-axis (fig. 1, 6 and col.8, lines 3-6), and a workpiece mounting table 4 supported by said shaft support means to allow for rotational indexing about a horizontal axis extending in the direction along the x-axis, said workpiece mounting table having at least one workpiece mounting surface (Fig. 1 and 2, col. 5, lines 7-9); and a chip discharge means located between said spindle support structure and said workpiece support structure for discharging chips produced in the machining area to the outside of the machining area (fig. 1 and 8, col. 3, lines 66- col. 4 line 1, col. 5, lines 17-25, col. 6, lines 19-28). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Lindem to include the workpiece support structure including a base having

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shaft support means, and a chip discharge means located between the spindle support structure and workpiece support structure as taught by Sacchi for the purpose of clearing waste and chips generated by machining from the table and the work (see Sacchi Abstract).

In regard to claim 2, Sacchi teaches a workpiece support structure comprising an extended workpiece support structure having a plurality of workpiece support structure units coupled to each other along the x-axis with the horizontal axes thereof aligned, said workpiece support structure having a predetermined x-axis unit length (col. 4, lines 36-41, fig. 4). Lindem in view of Sacchi teaches all aspects of the claimed invention except for the multiple spindle support structures. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a plurality of spindle support structures as taught by Lindem with the plurality of workpiece support structures as taught by Sacchi for the purpose of machining multiple workpieces at once. Furthermore, it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

In regard to claim 3, Lindem teaches a numerically controlled machine tool wherein the x-axis slider of the spindle support structure is driven in the direction along the x-axis by linear motors 108 disposed along said guide on the upper and lower portions of the base (fig. 3, col. 5, lines 15-18), respectively, and the linear motors include a stator and a mover arranged on the base and the x-axis slider, respectively, in opposed relation to each other so that an attraction force of said stator acting on said mover reduces the load in gravitational direction exerted on the guide of the x-axis slider (col. 5, lines 15-23 and col. 9, line 66 - col. 10 lines 7-33).

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In regard to claim 5, Sacchi teaches the workpiece mounting table 4 of said workpiece support structure 34 is formed into a shape of a substantially triangle pole having three workpiece mounting surfaces extending in parallel to the horizontal axis in the direction along the x-axis (col. 7, line 65 – col. 8, lines 1-6, fig. 5).

In regard to claim 6, Sacchi teaches the workpiece support structure is provided with a pushing means 100 for holding the workpiece in an indexed position located between the bottom of said workpiece mounting table 4 and the base for imparting a sideways pushing force on said workpiece mounting table 4 (fig. 2, col. 4, line 65 – col. 5, line 6). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the claimed machine tool as taught by Lindem to include the workpiece support structure as taught by Sacchi for the purpose of machining while the workpiece is rotatable around an axis to minimize down time (see Sacchi col. 2 lines 23-39). Furthermore, Lindem's device as modified by Sacchi discloses the claimed invention except for the pushing force upwards. It would have been obvious to one of ordinary skill in the art at the time the invention was made to impart the pushing force upwards to hold the workpiece in an indexed position. Furthermore, it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Lindem to include the rotatable spindle head of Corsi or Ferrari for the purpose of providing an additional axis of rotation of the spindle head for the machining process and provide greater flexibility in the machining processes (see Ferrari col. 1 line 30-35 and Corsi col. 1, lines 26-30).



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Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Lindem to include the workpiece support structure including a base having shaft support means, and a chip discharge means located between the spindle support structure and workpiece support structure as taught by Sacchi for the purpose of clearing waste and chips generated by machining from the table and the work (see Sacchi Abstract).

4. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,662,568 (Lindem) in view of U.S. Pat. No. 5,564,483 (Sacchi) in further view of U.S. Pat. No. 5,301,788 (Hironaka et al.) and in further view of U.S. Pat. No. 4,652,190 (Corsi) or U.S. Pat. No. 6,264,590 (Ferrari). Lindem in view of Sacchi and in further view of Corsi or Ferrari teach all aspects of the claimed invention except for the pallet changing means. See the rejections to claims 1-3, 5 and 6 above.

Hironaka et al. teaches a pallet stocker 1 and an apparatus for transferring a pallet, which has been supplied with a workpiece by a pallet stocker and delivered on a pallet carriage, onto the table of a machine tool and positioning the pallet on the table (col. 1, lines 7-11 and col. 3, lines 12-18).

It would have been obvious at the time the invention was made to modify the device taught by Lindem in view of Sacchi and Corsi or Ferreri to include the pallet changer means as taught by Hironaka et al. for the purpose of transferring a workpiece which has been placed on a pallet by a pallet stocker onto a workpiece table for positioning for machining (see Hironaka col. 3, lines 12-18).

***Allowable Subject Matter***

5. Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. Claims 8-10 are allowed.

The following is an examiner's statement of reasons for allowance: The prior art of record neither anticipates nor renders obvious a machine tool as claimed by applicant that includes the base of the spindle support structure provided with longitudinal spaces extending in the direction along the x-axis and opening downwardly in the upper and lower portions of the base with the guide located in each of the longitudinal spaces for guiding and supporting the x-axis slider, and an x-axis feed means located along the guide in each of the longitudinal spaces for moving the x-axis slider. The longitudinal spaces opening downwardly and the specifics of the claimed feed means are critical to the design of machine tool as disclosed in Applicant's specification.

The closest prior art of record found is U.S. Pat. No. 5,662,568 (Lindem) which teaches all aspects of the machine tool except for the longitudinal spaces opening downwardly.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

#### ***Response to Arguments***

7. Applicant's arguments with respect to claims 1-7 have been considered but are moot in view of the new ground(s) of rejection.

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*Conclusion*

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dana Ross whose telephone number is (703) 305-7764. The examiner can normally be reached on Mon-Fri 7:00am - 3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrea Wellington can be reached on (703) 308-2159. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1148.

dmr

  
A. L. WELLINGTON  
SUPERVISORY PATENT EXAMINER  
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